THE DUTIES OF THE NURSE IN THE MANAGEMENT OF MAJOR OPERATIONS IN PRIVATE HOMES

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In spite of the many advantages to patient and surgeon offered by our hospitals for operative work, there are still, and probably always will be, a considerable number of operations to be performed in private homes. A well-trained, self-reliant nurse, with a moderate amount of ingenuity and an ability to accommodate herself to circumstances, can do much to render such operations successful.

The disadvantages to be met with are numerous. We must concede, however, a few advantages—notably a calmer, more contented state of the patient's mind, and quieter surroundings for convalescence. The results of operation as regards wound infection are usually excellent; at least they can be made so if matters are well managed. The greatest drawbacks are that the operation usually takes a longer time in its performance and confusion is more apt to ensue if the conditions met with are unusual or very difficult. For this reason, careful preparation must be made and the nurse should endeavor to so coöperate with the surgeon as to make the operation proceed expeditiously and without confusion. A great deal is being done nowadays in our hospitals to better the organization of our operating rooms—the same should obtain in similar work in private homes. The intelligent coöperation of operator, assistants and nurse is here perhaps more necessary than in the hospital, where there are more to assist. There are few situations where the surgeon is so dependent upon the nurse as here. His patient's safety and comfort lie largely in her hands. I each year operate upon many patients in the country. The patients are rarely visited afterward by myself and are often so far from the practitioner in charge as to make frequent visits impossible. A large amount of the responsibility rests with the nurse.

We have endeavored to divide the work of preparation in such a way as to save all possible time and yet maintain a logical technic as regards asepsis.

We will presume that the operation is to be out of the city where the nurse will practically have complete charge of the preparation. She should usually be sent to the patient the afternoon beforehand. In emergency, she may go with the surgeon. She should be told the nature

of the expected operation, the time she will probably remain on the case, the time when the surgeon is to arrive, and any exceptions to be made in the preparation. Upon leaving the train she should, if possible, see the physician in charge, get from him any needed information as to patient and surroundings, and his instructions as to feeding and cathartics. Upon her arrival at the home she should at once see her patient. A spirit of cheerfulness, kindliness and encouragement will do much to

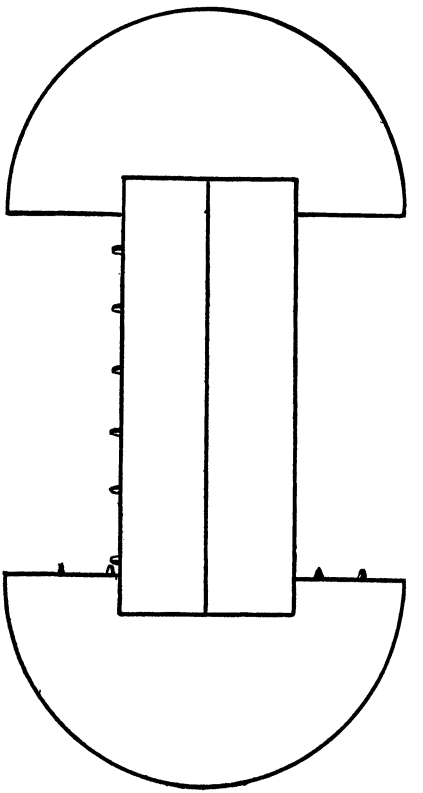

FIG. 1.—Dining-room table arranged for operating. Two leaves removed and placed lengthwise.

make the stay of the nurse a pleasant one and is of inestimable help to the patient. As soon as she has put on her uniform she should start her chart, making note of temperature, pulse, and general condition. The same rules for keeping record obtain here as at the hospital. A sample of urine should be obtained in all cases and in ample time for examination. This should be given the practitioner on his first visit.

He may have made such examination, but it is well not to take this for granted, as such is often made only at the last moment.

Now comes the selection of a room for operation. Usually but little choice is given. It may be parlor, dining-room, or even kitchen. Good light is the first consideration. If possible, the room should have more than one window, as this helps to do away with shadows. If the operation is to be done at night, as many emergency operations are,

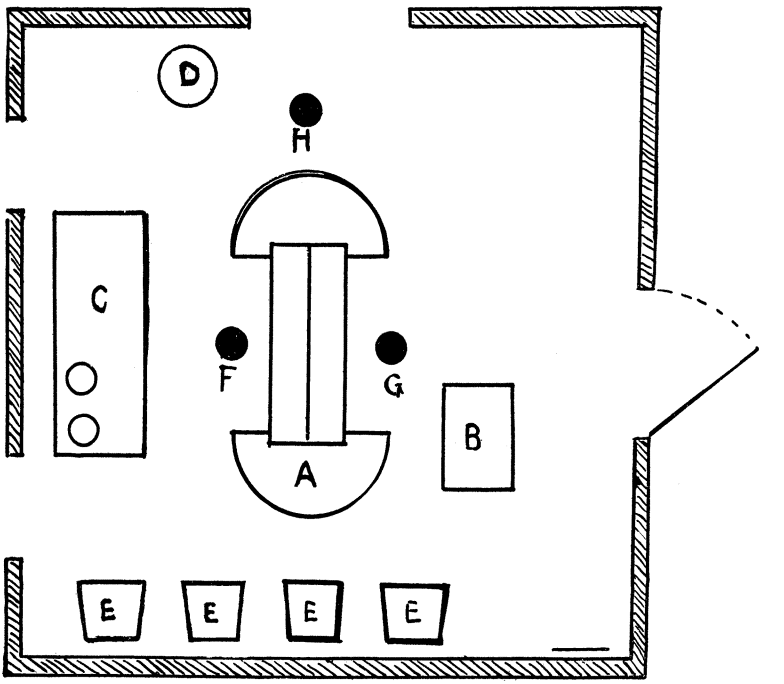

FIG. 2.—Arrangement of operating room. This will, of course, be varied according to circumstances. A, operating table; B, instrument table; C, operating material; D, anæsthetizer's materials; E, chairs; F, assistant; G, operator; H, anæsthetizer.

plenty of lamps in good condition should be procured, or one may rely on gas or electricity if at hand. On account of the uncertainty of the latter in country districts, it is well to see that one or two good lamps are at hand in case of failure. A room with light paper gives a more diffuse and better light than one more darkly tinted. One must look to it that the heating apparatus is reliable and sufficient. A temperature of from 80° to 90° F. at the time of operation is imperative. Recently we were delayed nearly two hours because the nurse had not looked after

this important item. The size of the room is of rather secondary importance—a large room is, of course, preferable, but within certain limitations a small room well lighted and heated is preferable to the large one lacking these two requisites.

There are usually plenty of friends and relatives to do the rough part of the work. An intelligent woman should, if possible, be selected to do some of the work of the unsterilized nurse of the operating room. All furniture should be removed and the walls and windows made bare.

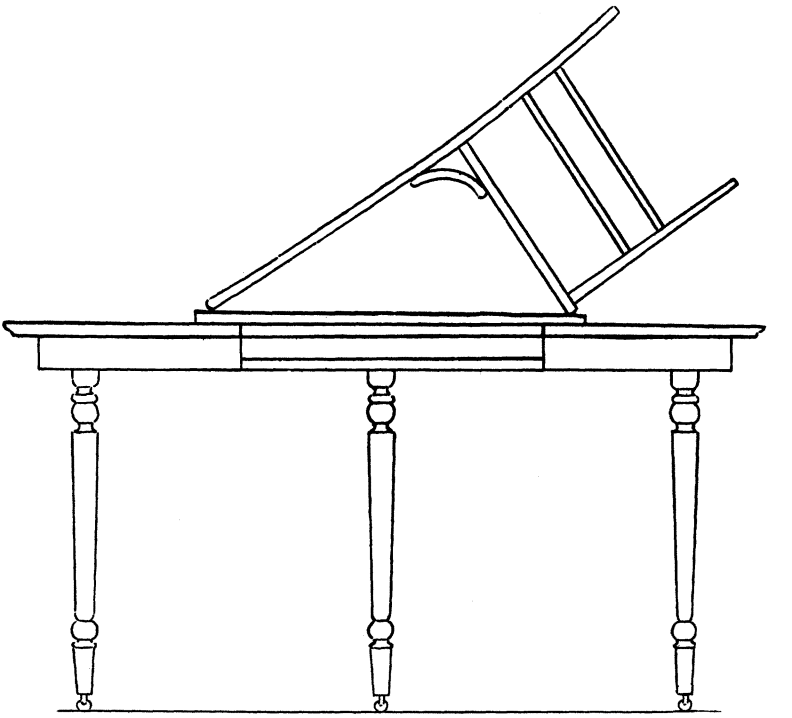

FIG. 3.—TABLE AND CHAIR ARRANGED FOR TRENDELENBURG POSITION.

The windows may, if necessary, be made opaque by rubbing over them a bar of soap well moistened in water. In most instances the carpet should be taken up, but in emergencies and occasionally under other circumstances, it may be left on the floor; for instance, if the floor underneath is in very poor condition and not to be easily cleaned. Under these circumstances clean sheets should be tacked or pinned down to the carpet so as to cover all the floor space utilized. The wall should be wiped with moist cloths on a broom to remove all dust and loose dirt. Window frames and all woodwork should be cleaned with a mild carbolic

solution (say 5 per cent.), or bichloride 1–1000. While this is being done the tables should be selected. I have never been convinced that any of the portable operating tables on the market were of any marked advantage. They are difficult to carry back and forth and in many of them strength is sacrificed to lightness. When the practitioner has a good one at his command, I have used it. Otherwise I use the family dining-room or even kitchen table. If the former, it should be made about six feet in length. Two leaves should be removed from the table and placed lengthwise between the ends. The leaves may, or may not, be nailed in place (Fig. 1). This arrangement allows surgeon and assistant to stand close to the patient without strain. A table of good size, say three by five feet, should be obtained for gowns, towels, sponges, suture material, etc. Two smaller tables placed together may, of course, be substituted for this. Then there must be a table—say two by two—for instruments, and a smaller one for the anæsthetizer's material. A chair may often be substituted for the last named. Four plain wooden chairs are to be placed in a row along the wall for wash bowls and solutions (Fig. 2). Another table may be substituted for two of the chairs to hold solutions. The tables and chairs should be thoroughly scrubbed. A stout chair with a square back, suitable for the Trendelenburg position, may be obtained if there is any possibility of its being used (Fig. 3). The chairs may be covered with clean sheets to good advantage. On occasions, in homes well furnished with linen, the nurse has covered the walls to a good height with clean sheets. This gives good light.

The kit should now be unpacked. Our full laparotomy kit contains the following:

Surgeon's instruments, needles and knives.
Four sterile sheets.
One sterile laparotomy sheet.
One sterile laparotomy towel.
Four sterile gowns.
Four packages sterile dressings.
Three packages sterile sponges (24 in each).
Two packages sterile large laparotomy sponges (6 in each).
Two packages sterile medium laparotomy sponges (6 in each).
Two bags sterile scrub sponges.
One bag sterile vaginal sponges.
One sterile abdominal pad.
Six bandages.
Suture material in abundance, including catgut, silkworm gut, silk or linen.
Iodoform packing in test tubes (sterile).
Plain packing (assorted widths) in packages or tubes (sterile).

A box of assorted sizes of drainage tubes.
Cigarette drains.
Rubber dam.
Catheter, douche points, rectal tube, razor.
One bottle bichloride tablets (large).
One bottle collodion.
One bottle carbolic acid (95 per cent.).
One bottle alcohol.
One bottle green soap.
One bottle chloroform.
One bottle (small) formaldehyde (40 per cent.) for specimen (to be diluted when used).
One can ether for anæsthesia.
One can commercial ether.
Ether and chloroform masks.
Six nail brushes.
Six basins.
Instrument pan.
Kelly pad.
Douche bag.
Gloves.
Adhesive strips.
Safety pins.

The sterilization of everything marked "sterile" is done at the hospital. Sponges are thrice counted before sterilization (and again by the nurse previous to operation).

The kit is packed in a strong telescope and, however reliable may have been the person putting it up, it is quite imperative that the nurse go over each item to see that nothing has been omitted. We have the hospital furnish a list with each kit and it is an easy matter to check this. On one occasion we found ourselves six miles in the country, ready for operation, but with no anæsthetic. It meant a delay of an hour and a half. On another occasion we had to send eight miles for curetting instruments before we could proceed. Since a full laparotomy kit includes material for almost any emergency, there is necessarily much that will not be used. These things will best be sorted out at once and put back in the telescope. No sterilized material should, of course, be opened at this time, except scrub sponges and a package of dressings.

A clean boiler should be filled two-thirds with clean water—soft water is preferable, but not imperative. In either case it should be strained through cotton if it contain sediment. A dipper with a string attached to the handle may be attached to the boiler and placed inside. The water should be boiled one-half hour. Without removing the cover, it may then be placed in the operating room out of the way and a clean

towel placed over it. It takes many hours for this to cool and it must be prepared the night before operation and not in the morning. In emergency, a large pitcher of boiled water may be cooled rapidly by placing it outside in the snow, or it may be poured from one pitcher to another (both pitchers previously boiled) and back again a number of times until sufficiently cool.

Before the patient's supper we give an ounce of castor oil, unless contraindicated. In regard to feeding, the practice varies considerably. We usually make the supper a moderately substantial one, for instance, as follows: A soft egg, or piece of steak, buttered toast, tea. At midnight a glass of milk or broth may be given if the patient is poorly nourished. We give water frequently during the evening and the morning of the operation.

Then comes the preparation of the field of operation. We prepare both vagina and abdomen in all gynæcological and abdominal cases, irrespective of the operation intended. It not infrequently happens that the operator changes his plans after a personal examination of the patient, or after the work has begun. This rule is particularly necessary outside of the hospital, although we follow it there also. If the nurse is not acquainted with the method of preparation preferred by the operator, it is well to inquire of him when engaged. When such information has not been obtained, she may make use of any of the standard procedures in which she has been trained. We use the following: The vulva is completely and carefully shaved, including the parts about the rectum. Soap and water with a moderately firm brush is lightly applied for ten minutes to the abdomen. Great care is taken not to abrade the skin. Particular care is given to the umbilicus—a pledget of gauze is useful here. All soap is then removed with water. Ether, alcohol, and bichloride (1–2000) are applied in sequence on pledgets of gauze. The abdomen is then wiped dry and covered with simple sterile gauze in abundance; over this, a well-fitting roller bandage, or a many-tailed bandage, or a binder improvised from cotton cloth. A careful fitting of this bandage deserves more care than is sometimes given it. It is not reassuring to the surgeon on examining the patient before operation to find the abdomen only half covered and exposed to the bedding and the patient's hands. The vagina is washed out gently, but thoroughly, with cotton or gauze on the finger, using plenty of soap and warm water. The vulva is treated likewise; a brush is, of course, too harsh for this purpose. A douche of plain water and one of bichloride (1–2000) follows and a clean aseptic pad is applied.

If it is a possible thing, the nurse should secure a good night's

rest before operation—the night following is, of course, apt to be a long and hard one. She should see to it that the house is made as quiet as possible at the earliest moment after the completion of the preparation. A too frequent neglect of this simple matter leads me to speak of it. If the nurse is ordinarily quick, two or three hours will suffice for this much of the preparation. It is well to allow two hours in the morning for the completion of the work previous to the arrival of the surgeon.

In the morning, the patient is first given her enema and a good movement secured. We use a simple soapsud enema for this purpose. As with the matter of the cathartic, this rule may have to be varied in certain cases, according to the instructions of the operator or practitioner. Where a bulky soapsuds enema is contraindicated, we often give two ounces of glycerin in four ounces of water, or even an ounce of glycerin alone. If, for any reason, a good result has not been secured, it should be reported to the surgeon upon his arrival.

A second boiler and a kettle of clean water should be put on to boil for half an hour. A large dish pan may be substituted, if the boiler cannot be conveniently obtained. In the boiler may be placed six basins, two wash bowls and one large pitcher. The nurse then removes the pins from the packages of gauze, gowns, towels, etc. In all serious operations it is well to have saline solution ready for intra-abdominal or subcutaneous use. This is best prepared by taking one gallon of perfectly clear water, boiling it ten minutes; a teaspoonful of salt to the pint is put in a separate dish and boiled in a small quantity of water; this is added to the water, which is kept in a boiled pitcher, covered with a towel. The nurse then scrubs her hands well for ten minutes and puts them through the solutions. Everything should be removed from the large table which is to hold this material and it should be covered with a sterilized sheet removed from the package by the nurse. A helper opens the package and the nurse removes its contents with sterilized hands. The outer covering only, of the packages containing the sponges, is removed, since they are to be counted and handled only with gloved hands. Three of the boiled basins are removed with a forceps from the boiler and placed upon the table; one for the suture material, one for the sponges, and the last for sponges after they have been used. If preferred, the suture material and sponges may be placed on towels folded so as to cover them instead of using basins. Sheets, towels, gowns, and gauze dressings are unwrapped and placed upon the table. Bottles containing solutions are best soaked in strong bichloride solution and afterward wrapped in sterile gauze. They are then placed

upon the table. The rubber gloves are wrapped in separate packages of gauze (a pair in each package) and placed in a basin ready to be boiled.

Two wash bowls are placed upon chairs, on the next chair the boiled scrub brushes, green soap and a nail cleaner. On the last chair a basin of bichloride. See that a slop basin is at hand. This can afterward be used under the operating table. A foot tub, a clean pail, or a dish pan, may any of them be used for this purpose. If the Trendelenburg is not to be used, the table is covered with a clean blanket, over which a clean sheet is placed. This completes the nurse's duties up to the time of the arrival of the surgeon.

As a rule, the surgeon examines the patient, and for this purpose requires a basin or wash bowl with a pitcher of hot water and plain soap. This had best be placed outside the operating room. If he is to remove the dressings from the patient's abdomen, an extra pair of gloves for this purpose should be at hand. As soon as the examination is completed, the nurse should at once ask the surgeon to select his instruments. Such instruments as are to be used are then put on to boil. The basin containing the gloves goes on at the same time. The knives and scissors are placed in pure carbolic, if preferred. They are washed off, at the last moment, in alcohol.

Custom varies as to whether the patient be anæsthetized in her own room or upon the table. In either case, it is, of course, necessary to see that the technic is not interfered with when she is brought in. Just before the anæsthetic is begun, the patient should be catheterized. It is best that the anæsthetizer's gown goes on at the time that he begins the anæsthetic. He prepares his own hypodermics. If the patient is anæsthetized before bringing her to the table, I usually place her at once in the Trendelenburg position if such is to be used, seeing that she is comfortably placed on a blanket and securely tied.[1] The last round of the chair should be padded. The limbs should then be wrapped in a blanket up to the pubes. The arms are best secured by fastening the hands over the chest, with the elbows resting on the table. The night dress may be doubled up over the hands and secured with safety pins in such a manner that it is impossible for the patient to bring her hands into the field of operation by any sudden move.

While the anæsthetic is being given, the surgeon and his assistant

[1] If vaginal work is to be performed, it is necessary to divide instruments, suture material, needles, sponges, gloves, gowns, into two separate parts; when completed, and before the second operation begins, these should be removed.

have been scrubbing their hands. It is necessary that the pitcher of hot water be kept ready and refilled. This can be done by a helper. After washing, the surgeons put their hands into the solutions which have been previously prepared. Any standard method may be used. We often use bichloride (1–1000) followed by alcohol poured over the hands by a helper. The assistant's gown goes on first. The nurse may tie this in back, since her hands are not at this time sterile; the surgeon, with sterile hands, ties the gown at the wrists.

When the patient is anæsthetized, or, in some cases, even before this time, the preparation of the abdomen begins. The nurse cuts the bandages and hands the operator a basin containing pledgets of gauze. The abdomen is then scrubbed, but it is well to use but very little water for this purpose, otherwise the patient lies in a slop during the operation. The bulk of the soap is removed with a sterile towel and the rest washed off with water. Then comes the ether, alcohol, and, finally, the abdomen is covered with a number of dressings soaked in bichloride. The operator washes his hands again in alcohol. The nurse scrubs her hands for the last time and goes through the solutions while the operator and his assistant place the sheets and towels about the patient. Finally, the nurse, with the assistance of the surgeon, puts on her gown and gloves. She then, for the first time, counts her sponges. The responsibility resting entirely upon the nurse, great precision in counting is, of course, required; far more so, if anything, than at the hospital. The surgeon or his assistant has arranged the instruments and the operation begins.

The nurse's duties during operation are principally to handle sponges and to supply ligature material. If she is accustomed to the surgeon's work, she may, by noting the different steps of the operation, be in constant readiness for him, and a good nurse will rarely be behind with sponges and suture material. In regard to the sponges, it is necessary that no sponges be allowed to be thrown on the floor, but all should come back to the basin that has been arranged for their disposal. We allow no small sponges in the field except on sponge holders; a forceps is attached by the nurse to the tape of each large one as it leaves her hand. If a nurse is in doubt in regard to the suture or needles needed, she should have no hesitation in asking. When the abdomen is about to be closed, she should count her sponges, and this should be done deliberately and several times in order that there be absolutely no question. It should be particularly noted that the peritoneum is entirely closed when the last count is made. A number of accidents have occurred because an already counted and fresh sponge has been used at this stage.

During the closure of the abdomen she will need considerable suture material and usually a different type of needle is used. It is annoying to the surgeon to get suture material threaded to needles unsuited to the fascia and skin.

Custom varies as to the dressing of the wound. We place three or four layers of gauze on the wound and seal the edges with collodion. Over this are placed dressings and an abdominal pad and adhesive straps. The latter are best cut in the middle, the ends folded back and then tied together with tapes. Over the dressings we put a many-tailed bandage.

While the wound is being sutured, the nurse tells the friends to prepare the bed with hot water bottles. During the operation the bed, of course, has been freshly made up and ready for the patient. The patient is then carried to the bed and wrapped with blankets, a basin and towel placed near the head in case of vomiting. The nurse takes the pulse and respiration, notes them on the chart and then sees at once that the instruments are taken care of. Unless instructed to the contrary, the nurse puts the specimen in a 4 per cent. solution of formaldehyde and returns it with the kit. The soiled towels, if there is time, are wrung out of cold water and dried, and the kit packed in an orderly manner, ready for shipment.

VISITING NURSING AS A PART OF THE TRAINING-SCHOOL CURRICULUM *

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THE Visiting Nursing Department of the Presbyterian Hospital in the city of New York was established over four years ago by a graduate nurse, who has the direction and supervision of the student nurses and their work in the homes.

Beginning with one student nurse under the graduate instructor, the staff was gradually increased to four student nurses,—three for the medical and surgical nursing and the fourth for the tuberculosis work.

After six months' trial the student nurses were found inadequate for the tuberculosis work because of their inexperience, and the frequent

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